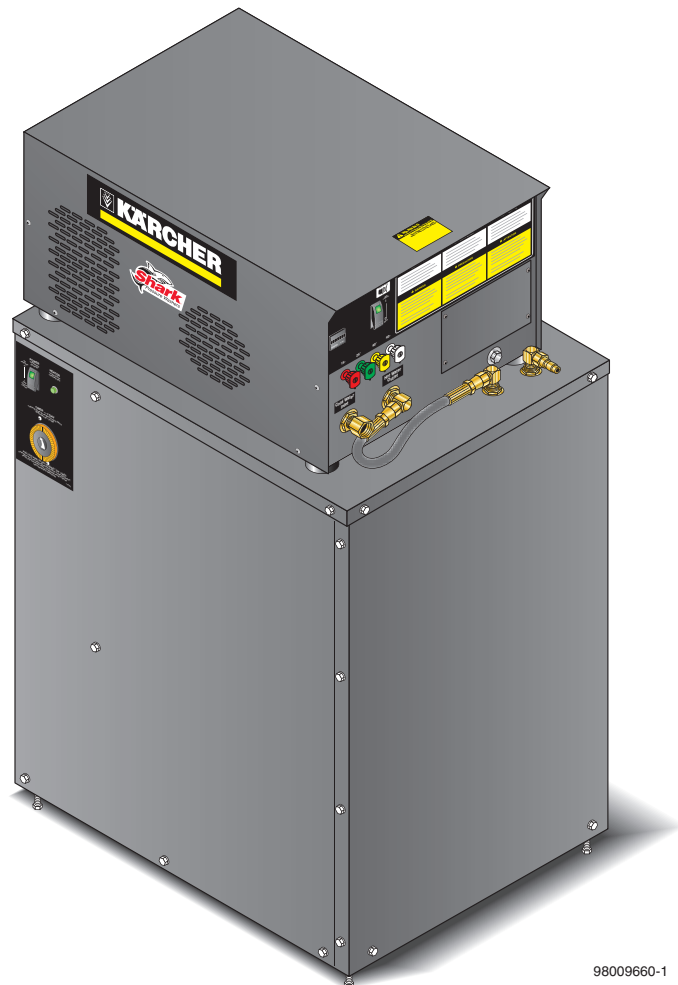




SERVICE MANUAL



98009660-1

<u>MODEL #</u>	<u>ORDER #</u>
HDS 4.0/20 E Ec / EEC-422007C	1.109-075.0
HDS 4.0/30 E Ec / EEC-353007C	1.109-076.0

To locate your local Kärcher Shark Commercial Pressure Washer Dealer nearest you,
visit www.karchercommercial.com or www.karchershark.com

9.800-966.0

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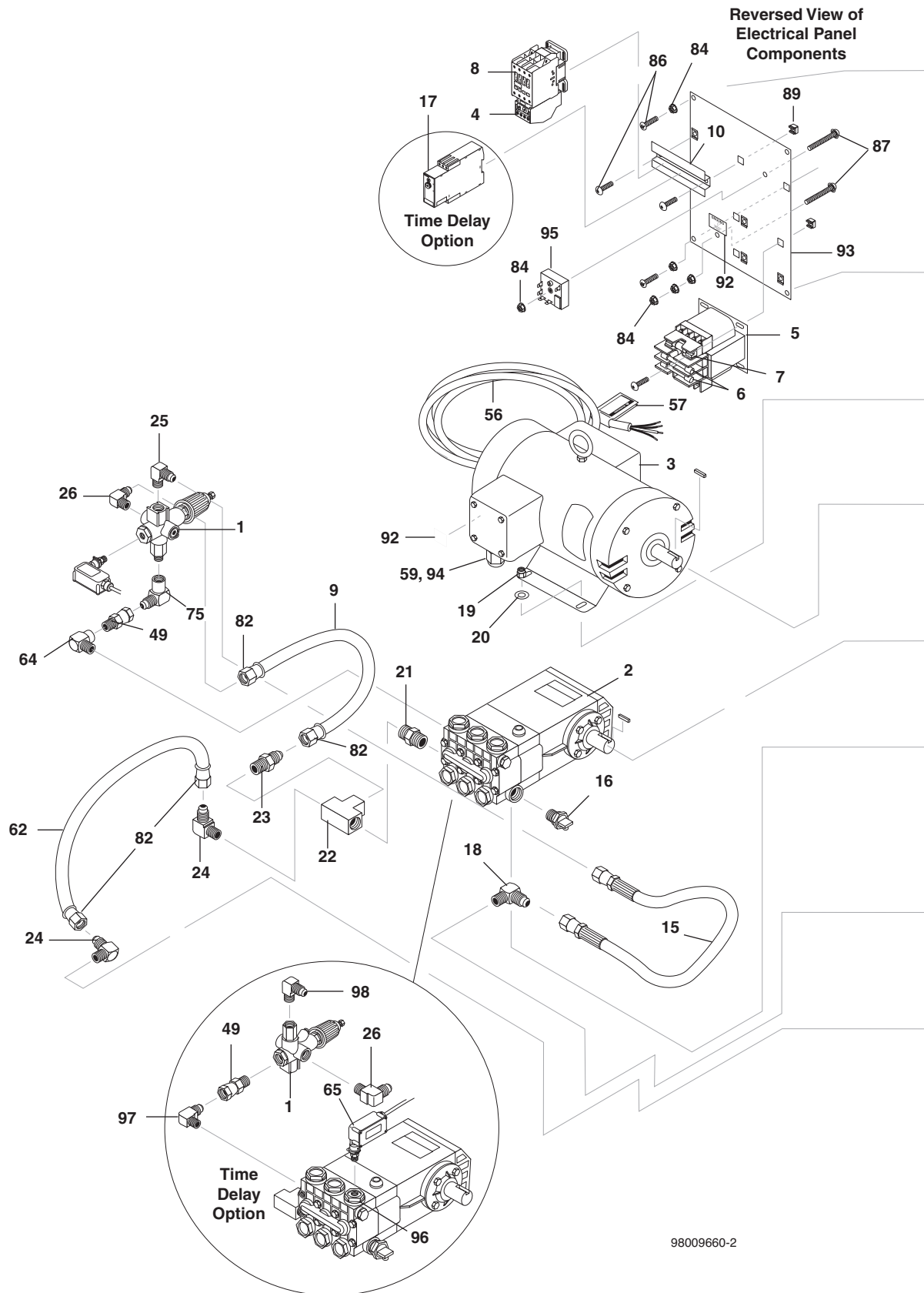
Model Number _____

Serial Number _____

Date of Purchase _____

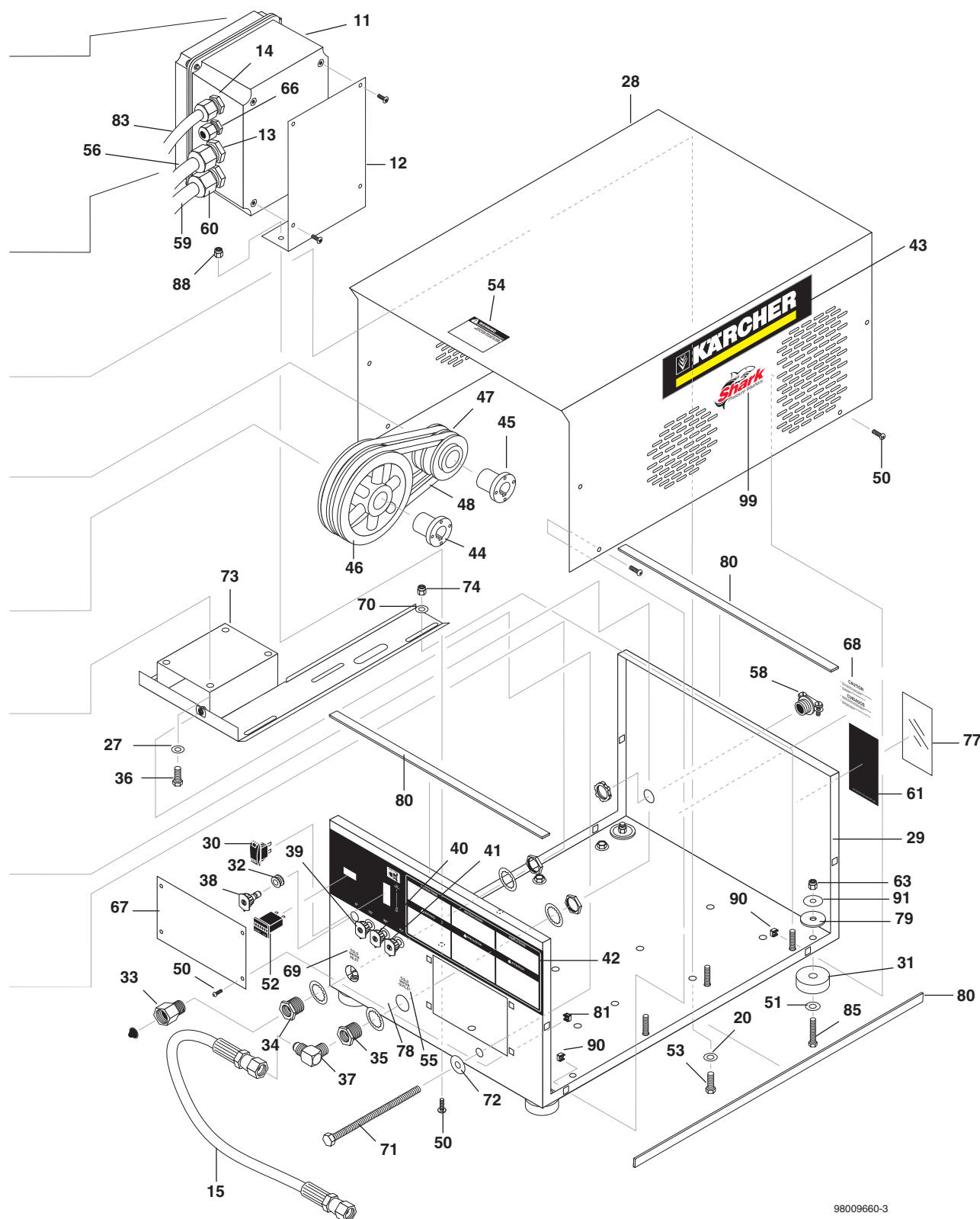
The model and serial numbers will be found on a decal attached to the pressure washer. You should record both serial number and date of purchase and keep in a safe place for future reference.

EXPLODED VIEW - LEFT SIDE



98009660-2

EXPLODED VIEW - RIGHT SIDE



EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	9.802-362.0	Unloader, PA 8GPM@3650 PSI, VB8 W/Switch	1
	8.715-483.0	Unloader, AL (VRT607) (Time Delay Option)	1
2	Pump, See Specification Pages		
3	Motor, See Specification Pages		
4	Overload, See Specification Pages		
5	Transformer, See Specification Pages		
6	Fuse, See Specification Pages		
7	Fuse, See Specification Page 28-29		
8	Contactor, See Specification Pages		
9	9.802-259.0	Hose, 1/2" Push On	18"
10	9.802-457.0	Din Rail, 35mm	4"
		(Time Delay Option)	6"
11	9.802-476.0	Box, Plastic, 10" x 8" x 6" w/Lid	1
12	9.803-038.0	Bracket, Support for Elec Box	1
13	9.802-518.0	Strain Relief, 3/4" LQ Tite	1
	9.802-526.0	▲ Locknut, 3/4"	1
14	9.802-515.0	Strain Relief, Strt, LQ Tite, Med	1
	9.802-524.0	▲ Locknut, 1/2" Conduit	1
15	9.802-240.0	Hose, 3/8" x 22", 2 Wire, Pressure Loop	1
16	9.803-670.0	Pump Protector, 1/2, 190°	1
17	9.802-473.0	Timer, Multi-Function (Time Delay Option)	1
18	9.802-039.0	Elbow, 1/2" JIC, 3/8", 90°	1
19	9.802-779.0	Nut, 3/8" ESNA	4
20	9.802-807.0	Washer, 3/8", SAE, Flat	8
21	8.706-797.0	Nipple, 1/2" Hex	1
22	8.706-844.0	Tee, 1/2" Female, Pipe	1
23	9.802-128.0	Nipple, 1/2" JIC x 1/2" MPT Pipe	1
24	9.802-131.0	Elbow, 1/2" JIC x 1/2", 90°	2
25	9.802-039.0	Elbow, 1/2" JIC x 3/8" Steel	1
26	9.802-129.0	Elbow, 1/2" x JIC x 3/8", Brass	1
27	9.802-807.0	Washer, 3/8 Flat	4
28	9.802-879.0	Cover, Kärcher	1
29	9.802-875.0	Base, Kärcher	1
30	9.802-451.0	Switch, Rocker, Carling w/Green Lens	1
	9.802-452.0	Switch, Rocker, Red Face (Time Delay Only)	1
31	9.802-066.0	Pad, Soft Rubber, 50 Duro	4
32	9.802-064.0	Grommet, Rubber, Nozzle Holder	4
33	9.802-146.0	Swivel, 1/2" MP x 3/4" GHF w/Strainer	1
34	8.707-000.0	Connector, 1/2" Anchor	1

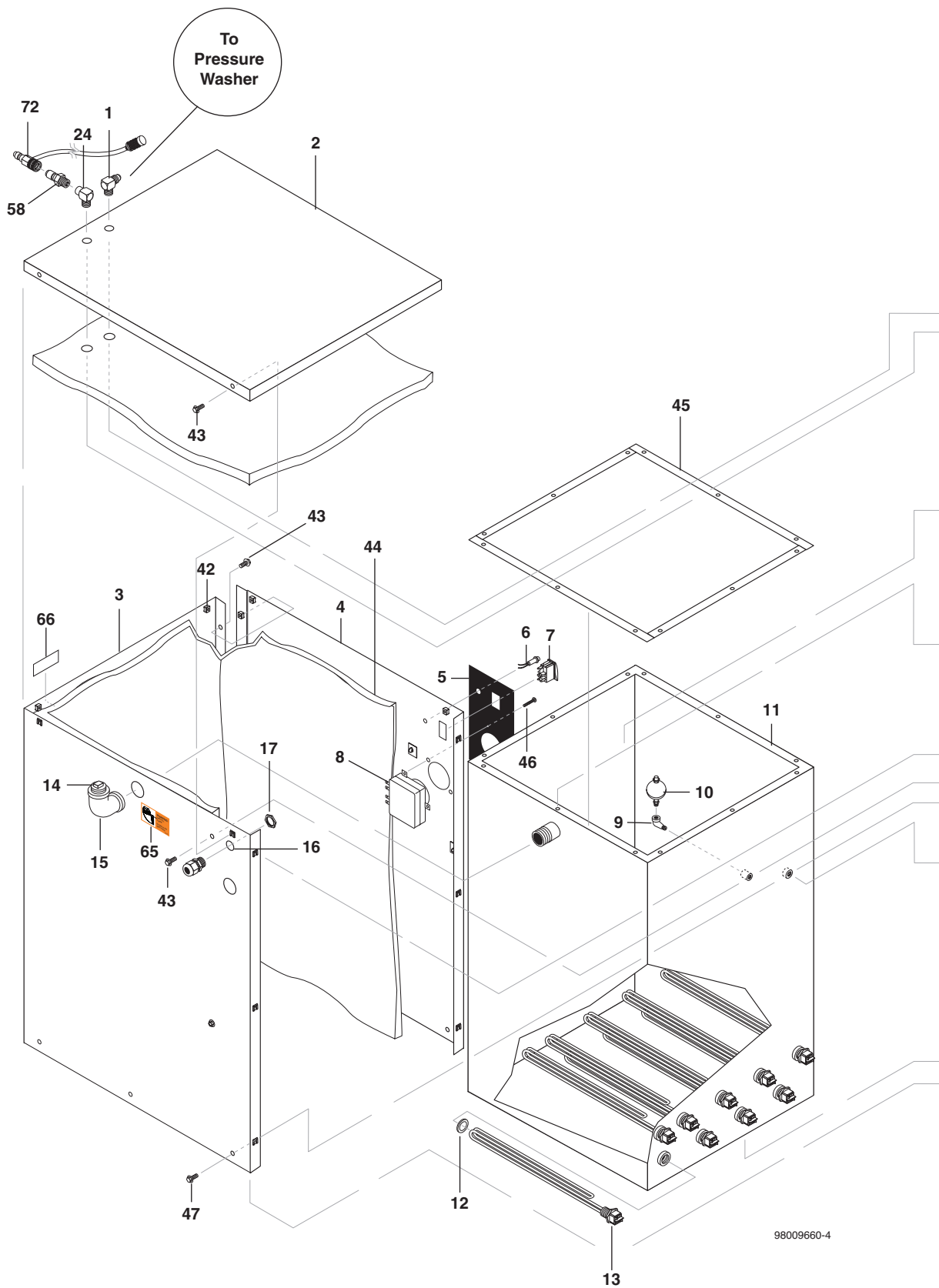
ITEM	PART NO.	DESCRIPTION	QTY
35	8.706-998.0	Connector, 3/8" Anchor	1
36	9.804-058.0	Bolt, Pump Mounting	4
37	9.802-039.0	Elbow, 1/2" JIC x 3/8" 90° MPT	1
38	8.712-345.0	Nozzle, SAQCMEG 0004 Red (HDS 4.0/30)	1
	8.712-361.0	Nozzle, SAQCMEG 0006 Red (HDS 4.0/20)	1
39	8.712-346.0	Nozzle, SAQCMEG 1504 Yellow (HDS 4.0/30)	1
	8.712-362.0	Nozzle, SAQCMEG 1506 Yellow (HDS 4.0/20)	1
40	8.712-347.0	Nozzle, SAQCMEG 2504 Green (HDS 4.0/30)	1
	8.712-363.0	Nozzle, SAQCMEG 2506 Green (HDS 4.0/20)	1
41	8.712-348.0	Nozzle, SAQCMEG 4004, White (HDS 4.0/30)	1
	8.712-364.0	Nozzle, SAQCMEG 4006, White (HDS 4.0/20)	1
42	9.800-064.0	Label Kärcher Control Panel CT	1
43	8.932-985.0	Label Kärcher Stripe 17"	2
44	Bushing, See Specification Pages		
45	Bushing, See Specification Pages		
46	Pulley, See Specification Pages		
47	Pulley, See Specification Pages		
48	Belt, See Specification Pages		
49	9.802-048.0	Swivel, 1/2" JIC Fem, 3/8" Male	1
50	9.802-765.0	Screw, 1/4"x1/2" BH SOC ES	14
51	9.802-817.0	Washer, 3/8" x 1" Steel	4
52	9.802-283.0	Hour Meter, 115 VAC	1
53	9.802-720.0	Bolt, 3/8" x 1", NC HH	4
54	8.932-965.0	Label, Warning, Exposed Pulley	1
55	8.932-970.0	Label, Cold Water Outlet	1
56	9.802-429.0	Service Cord 12/4	10 ft.
57	8.932-969.0	Label, GFCI	1
58	9.802-522.0	Strain Relief 1"	1
59	9.802-429.0	Service Cord 12/4	40"
60	9.802-518.0	Strain Relief, Strt, LQ Tite 3234 Large	1
	9.802-526.0	▲ Locknut, 3/4"	1
61	9.800-013.0	Label, Intended For Indoor Use	1
62	9.802-259.0	Hose, 1/2" Push-on	12"
63	9.802-779.0	Nut, 3/8" ESNA NC	4
64	8.706-207.0	Elbow, 3/8" Street	1
65	8.716-125.0	Switch, Pressure (Time Delay Option)	1
66	9.802-514.0	Strain Relief, 1/2"	1
	9.802-524.0	▲ Locknut, 1/2"	1

EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
67	9.803-081.0	Cover, Access Hole	1
68	8.901-148.0	Label, Caution	1
69	9.800-020.0	Label, Cold Water Inlet	1
70	8.718-980.0	Washer, 5/16" Flat	4
71	9.802-738.0	Bolt, 1/2" x 8" NC HH	1
72	9.802-800.0	Washer, 1/2" Flat	1
73	9.803-100.0	Slider, Pump	1
74	9.802-776.0	Nut, 5/16" ESNA	4
75	9.802-042.0	Elbow, 1/2" JIC x 3/8" Female, 90 DGR	1
76	8.706-294.0	Bushing, 1/2" x 3/8" Steel	1
77	9.800-034.0	Clear Lexan	1
78	8.901-136.0	Detergent label	1
79	9.802-067.0	Bumper Pad	4
80	9.802-073.0	Weather Stripping	7 ft.
81	9.802-074.0	Nut, 1/4" Square	4
82	9.802-151.0	Swivel, 1/2" JIC Fem. Push-On	4
83	9.802-424.0	Cord, 16-4 Service	30"
84	9.802-695.0	Nut, 10/32" Keps	7
85	9.802-723.0	Bolt, 3/8" x 1-1/2" NC HH	4
86	9.802-759.0	Screw, 10/32" x 1/2" Black	10
87	9.802-762.0	Screw, 10/32" x 1-1/4"	1
88	9.802-773.0	Nut, 1/4" ESNA NC	2
89	9.802-791.0	Cage Nut, 10/32" x 16 Gauge	6
90	9.802-794.0	Cage Nut, 1/4" x 12 Gauge	8
91	9.802-811.0	Washer, 3/8" x 1-1/2" Fender	4
92	9.800-040.0	Label, Ground	2
93	9.803-302.0	Standoff, Electrical Box	1
94	9.802-520.0	Strain Relief, 3/4"	1
95	9.802-472.0	Timer, Solid State, 120V 5-60 Min. Adjust.	1
96	8.707-264.0	Plug, 3/8" Gas Tap (Time Delay Option)	1
97	9.802-039.0	Elbow, 1/2 JIC x 1/2 MPT (Time Delay)	1
98	9.802-042.0	Elbow, 1/2 JIC x 3/8 Fem (Time Delay)	1
99	8.704-660.0	Label, Shark, Die Cut	2

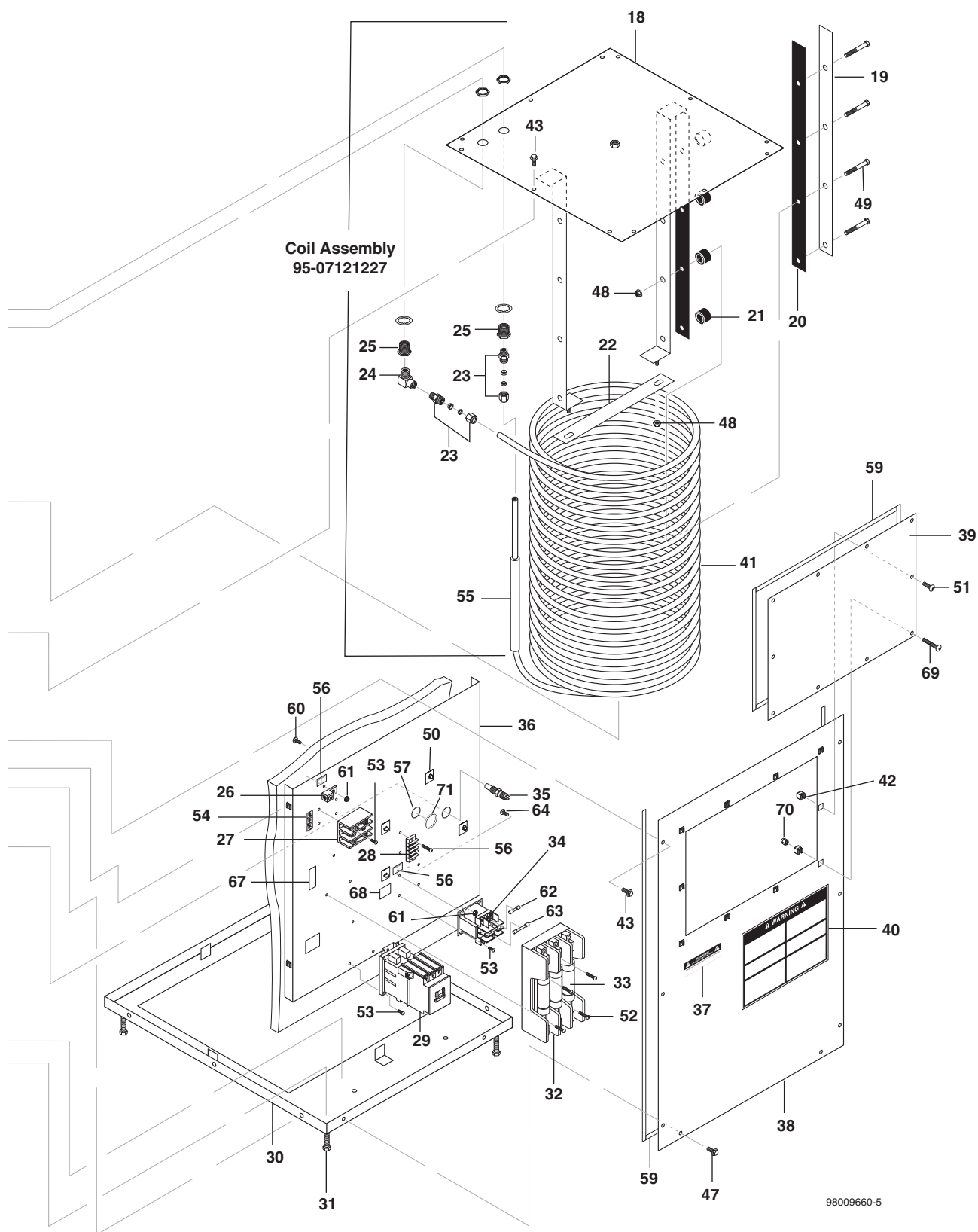
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CABINET EXPLODED VIEW - LEFT SIDE



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CABINET EXPLODED VIEW - RIGHT SIDE



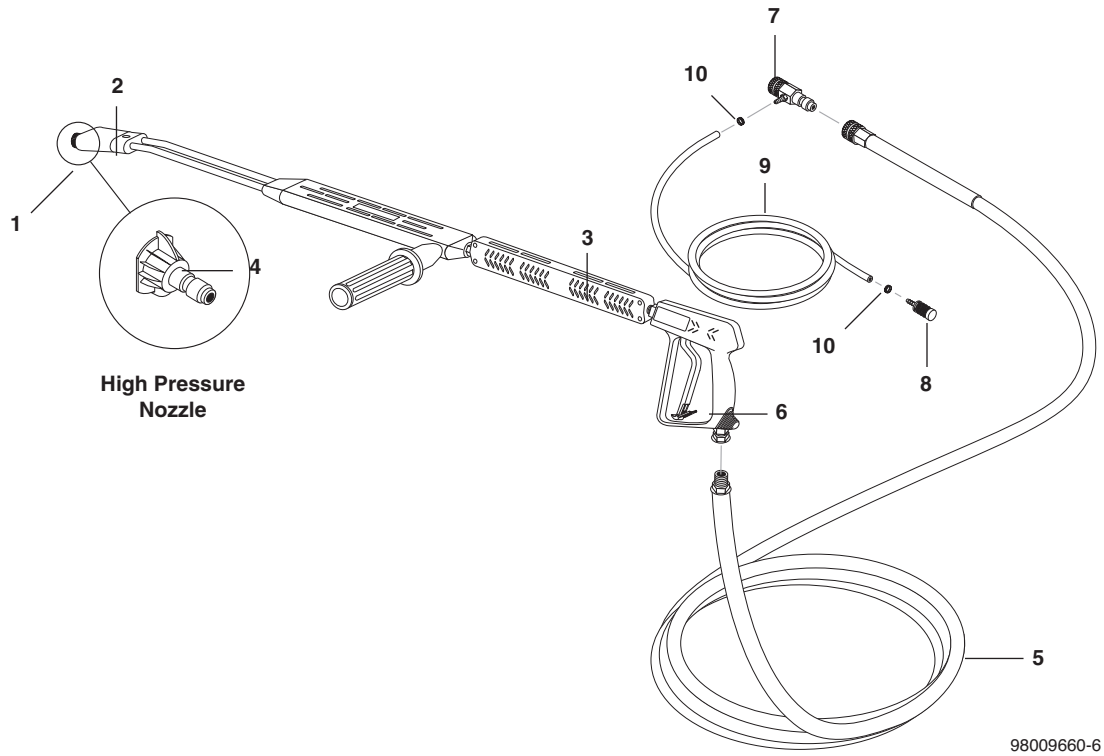
98009660-5

CABINET PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	9.802-039.0	Elbow, 1/2" JIC x 3/8" MPT	1
2	8.913-216.0	Lid, Top Cover	1
3	8.913-218.0	Outer Wrap, Fill Side	1
4	8.913-219.0	Outer Wrap, Power Side	1
5	8.940-048.0	Label, Heating Unit Power	1
6	9.802-455.0	Light, Green 125V	1
7	9.802-451.0	Switch, Rocker Carling w/Green Lens	1
8	8.716-254.0	Timer, 7 Day Pin, 120V, 20A PB873MKZ	1
9	8.706-161.0	Elbow, 1/4" Street, 90° Galv	1
10	8.716-633.0	Switch, Limit w/Clamp	1
11	8.913-211.0	Tank Assembly	1
12	8.716-650.0	Gasket, 6000W Heater, 2500 Series	9
13	8.716-645.0	Heater, 4500W 480V #055994-091	9
14	8.913-222.0	Plug, 1.5" Pipe, Black	1
15	8.913-221.0	Elbow, 1-1/2" Female, Black 90°	1
16	9.802-518.0	Strain Relief, Large	1
17	9.802-526.0	Locknut, 3/4" 8465	1
18	8.913-212.0	Tank Assembly Lid	1
19	8.913-213.0	Bracket, Coil	2
20	8.706-542.0	Pad, 1/4" Rubber, Coil	4
21	8.711-785.0	Hose, 3/8" x 1/2" Push-on	8
22	8.913-214.0	Bracket, Coil Spacer	1
23	8.706-322.0	Tube Fitting, Parker 8MSC6N-316 1/2" SS A-Lok	2
24	8.706-207.0	Elbow, 3/8" Street	2
25	8.706-998.0	Connector, 3/8" Anchor	2
26	8.716-461.0	Terminal, Grounding Lug, 1/0-6 Copper Wire	1
27	8.716-122.0	Block, Power Distr, 3 Pol, GO63133	1
28	9.802-491.0	Block, Terminal, 4 Pole	1
29	8.724-284.0	Contact, 120V	1
30	8.913-210.0	Tank Base Assembly	1
31	8.718-696.0	Bolt, 1/2" x 3" NC, SS	4
32	8.716-225.0	Holder, Fuse Block, Buss R60060-3CR	1
33	8.730-762.0	Fuse, Buss FRS-R-50, 600V 50 Amp	3
34	8.716-883.0	Transformer, 208/230/460V-24/115V, .050KVA	1

ITEM	PART NO.	DESCRIPTION	QTY
35	8.712-179.0	Switch TH HI 84°C NC 1/2 x 1/2 SP	1
36	9.813-220.0	Electrical Panel	1
37	9.800-016.0	Label, Disconnect Power Supply	1
38	8.913-215.0	Plate, Back Cover	1
39	8.913-217.0	Plate, Electrical Access	1
40	8.940-047.0	Label, Warning	1
41	8.912.251.0	Coil, 1/2" O.D. SS Tubing	1
42	9.802-793.0	Nut, Cage 1/4" x 16 Ga	30
43	9.802-754.0	Screw, 1/4" x 1/2" HH NC Whiz Lock	32
44	8.717-480.0	Insulation, 1" x 24" x 48" Fiberglass, Foil One Side	4
45	8.706-569.0	Gasket, Neop	8 ft
46	8.718-755.0	Screw, 8/32" x 1-1/2", SS Phil PH	2
47	9.806-551.0	Screw, 5/16" x 3/4" Whiz	10
48	9.802-778.0	Nut, Whiz Loc, 5/16 Flange	10
49	9.802-716.0	Bolt, 5/16" x 2" NC HH	8
50	8.716-533.0	Clamp, Tie Wrap Adhesive	9
51	9.802-765.0	Screw, 1/4" x 1/2" BH SOC CS	9
52	8.718-934.0	Screw, #8 x 1" Phil Pan Sheet Metal	6
53	8.718-929.0	Screw, #6 x 3/8" Phil Pan Sheet Metal	13
54	8.940-007.0	Label, Incoming Line	1
55	9.802-259.0	Hose, 1/2" Push-on	1 ft.
56	9.800-040.0	Label, Ground Symbol	3
57	9.802-103.0	Bushing, Snap 5/8	1
58	9.802-171.0	Nipple, 1/2" Hex Steel	1
59	9.802-073.0	Weatherstrip, 1/8" x 1/2"	10 ft.
60	8.718-803.0	Screw, 10/32" x 3/4" BHSOC	1
61	9.802-695.0	Nut, 10/32" Keps	3
62	9.802-464.0	Fuse, Paper Bass 8/10 250V	1
63	8.713-081.0	Fuse, Class R1/2 Amp	2
64	9.802-759.0	Screw, 10/32" x 1/2" BH SOC	1
65	8.724-513.0	Label, Fill Elbow	1
66	9.800-021.0	Label, Hot Water Outlet	1
67	8.915-607.0	Label, Class RD5, 50 Amp	1
68	8.915-610.0	Label, XFMR Primary/Secondary Fuses	1
69	9.802-770.0	Screw, 1/4" x 1", BH SOC CS	1
70	9.802-773.0	Nut, 1/4" ESNA, NC	1
71	9.802-065.0	Grommet, 1-5/16" Rubber	1
72	9.802-225.0	Detergent Injector Assy, Non-Adj. #3	1

HOSE & SPRAY GUN ASSEMBLY AND PARTS LIST



HOSE & SPRAY GUN ASSEMBLY AND PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	9.802-165.0	Coupler, 1/4" Male	1
	9.802-096.0	▲ Quick Coupler O-Ring, Small	1
2	9.802-286.0	Nozzle Only, 1/8", Soap	1
3	8.711-293.0	Wand, SS, VP, AL344 w/Coupler & Soap Nozzle	1
4	See Nozzles, Page 18		
5	8.739-314.0	Hose, 3/8" x 50', 1 Wire, Tuff-Flex	1

ITEM	PART NO.	DESCRIPTION	QTY
6	9.802-229.0	Spray Gun	1
7	9.802-216.0	Detergent Injector, Non-Adjust 3-5 GPM	1
8	8.707-057.0	Strainer, 1/4" Hose Barb	1
9	9.802-251.0	Tube, 1/4" x 1/2" Clear Vinyl	6 ft.
10	9.802-210.0	Clamp, Hose, UNI .46 - .54	2

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SPECIFICATIONS

Model#	HP	Motor	Pump	Pump Pulley	Pump Pulley Description	Motor Pulley	Motor Pulley Description	Pump Bushing Description
1.109-075.0	6 hp	9.802-329.0	9.802-343.0	9.802-369.0	2AK74H	9.802-373.0	2AK56H	24 mm
1.109-076.0	7.5 hp	8.715-105.0	9.802-343.0	8.715-592.0	2BK80H	9.802-386.0	2BK52H	24 mm

SPECIFICATIONS

Model#	Pump Bushings	Motor Bushing	Motor Bushing#	Belt	Belt#	Contact	Overload Fuse	Primary Fuse	Secondary	Transformer
075.0	9.802-402.0	H x 1-1/8"	9.802-400.0	AX42	9.802-411.0	8.724-268.0	8.724-312.0	9.802-462.0(2)	9.802-463.0(1)	9.802-551.0
076.0	9.802-402.0	H x 1-3/8"	9.802-401.0	BX43	9.802-420.0	8.724-268.0	8.724-312.0	9.802-462.0(2)	9.802-463.0(1)	9.802-551.0

Unloader Adjustment Procedures

1. Remove lock nut (Item 7).
2. Remove adjustment knob (Item 8).
3. Loosen the two (2) nuts (Items 25), move them upward on stem (Item 14) until you see 4 or more threads below the nut.
4. Re-attach adjusting knob (Item 8).
5. Start machine. Open the trigger of the spray gun. Increase pressure by turning adjustment knob (Item 8) clockwise until pressure is at the desired operating pressure.
6. Remove the adjustment knob (Item 8), tighten the lower nut (item 25) tightly against the upper nut (Item 25). Re-attach adjustment knob (Item 8) and screw down until contact is made with the nuts (Item 25). Screw down lock nut (Item 7) onto the stem (Item 14) until the threads cut into the nylon insert of the lock nut (Item 7).

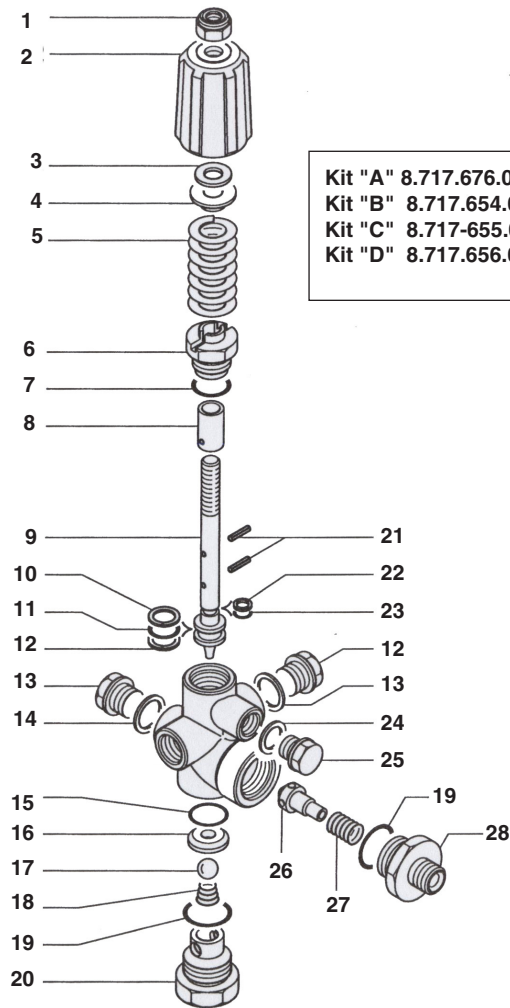
*If adjustment knob (Item 8) **DOES NOT** make contact with upper nut (Item 25), remove adjusting knob (Item 8), re-adjust (raise) nuts (Items 25) on stem (Item 14) and re-attach adjustment knob (Item 8), then repeat step #6.

If adjustment knob (Item 8) **DOES make contact with upper nut, release the trigger of the spray gun and watch the pressure gauge for the pressure increase ("spike"). This "spike" **SHOULD NOT** exceed 500 psi above the operating pressure. If spike pressure exceeds the 500 psi limit, remove the adjusting knob (Item 8) and re-adjust (lower) the nuts (Items 25) on the stem (Item 14). Re-attach the adjusting knob (Item 8), then repeat step #6.

VBR UNLOADER VALVE EXPLODED VIEW

8.715-503.0
3000 PSI
Red Knob

8.715-504.0
2200 PSI
Yellow Knob

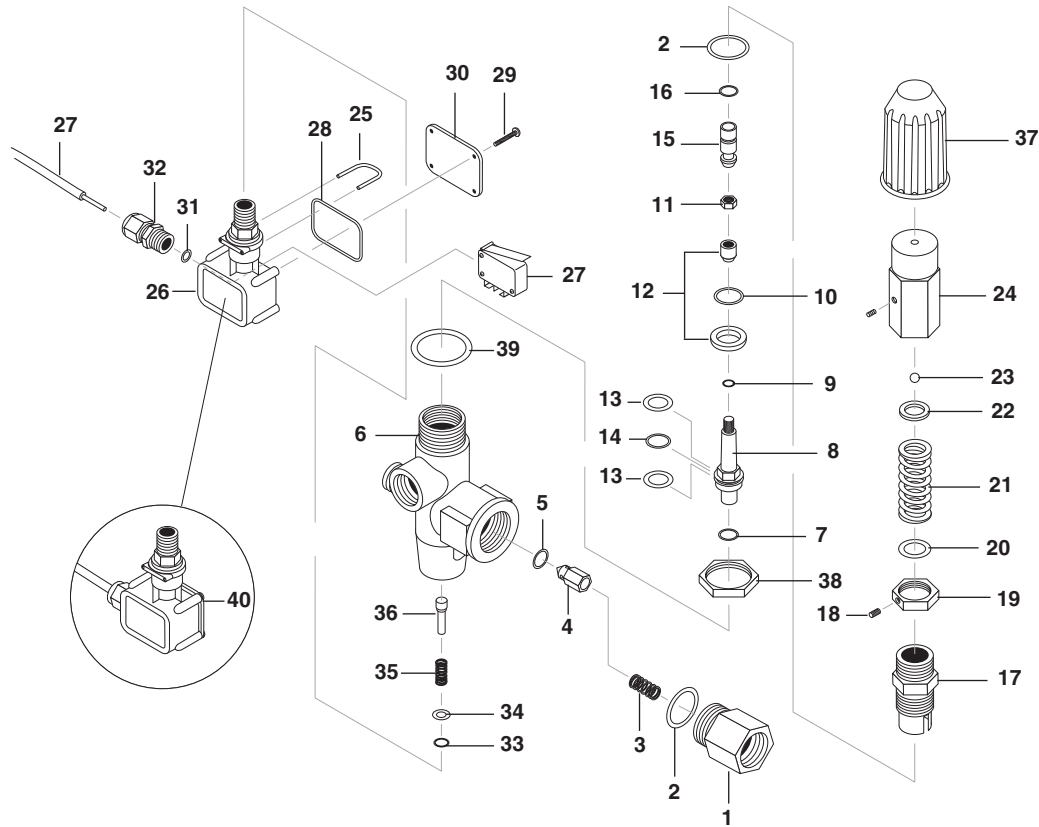


VBR UNLOADER VALVE EXPLODED VIEW PARTS LIST

ITEM#	PART #	DESCRIPTION	KIT	QTY	ITEM#	PART #	DESCRIPTION	KIT	QTY
1	8.717-192.0	Nut, Locking		1	14	8.717-146.0	Body		1
2	8.717-269.0	Handle, Red		1	15	9.803-948.0	O-Ring, Seat	B	1
	8.717-269.0	Handle, Yellow		1	16		Seat	B	1
3		Space, Anti-friction	D	1	17		Ball, 7/16	B	1
4		Plate	D	1	18		Spring	B	1
5		Spring	D	1	19		O-Ring, Connector	B	2
6	8.717-403.0	Stem Nut	D	1	20		Connector, Inlet		1
7	9.803-191.0	O-Ring, Nut	C	1	21		Pin	C	1
8		Spacer, Red		1	22	8.717-077.0	O-Ring, Backup 106	C	1
		Spacer, Yellow		1	23		O-Ring, Stem	C	1
		Spacer, Green		1	24	9.803-950.0	Washer, 1/4		1
		Spacer, Blue		1	25	9.803-951.0	Plug, 1/4		1
9		Stem	D	1	26	8.717-284.0	Poppet		1
10	8.717-078.0	O-Ring, Back up	C	2	27	8.933-017.0	Spring	A	1
11	9.803-951.0	O-Ring, Stem	C	1	28	9.802-891.0	Connector, Outlet	A	1
12	9.802-925.0	Plug, 3/8		2					
13	9.803-198.0	Washer, 3/8		2					

VB8 UNLOADER VALVE EXPLODED VIEW & PARTS LIST

9.802-362.0
8GPM@3650 PSI

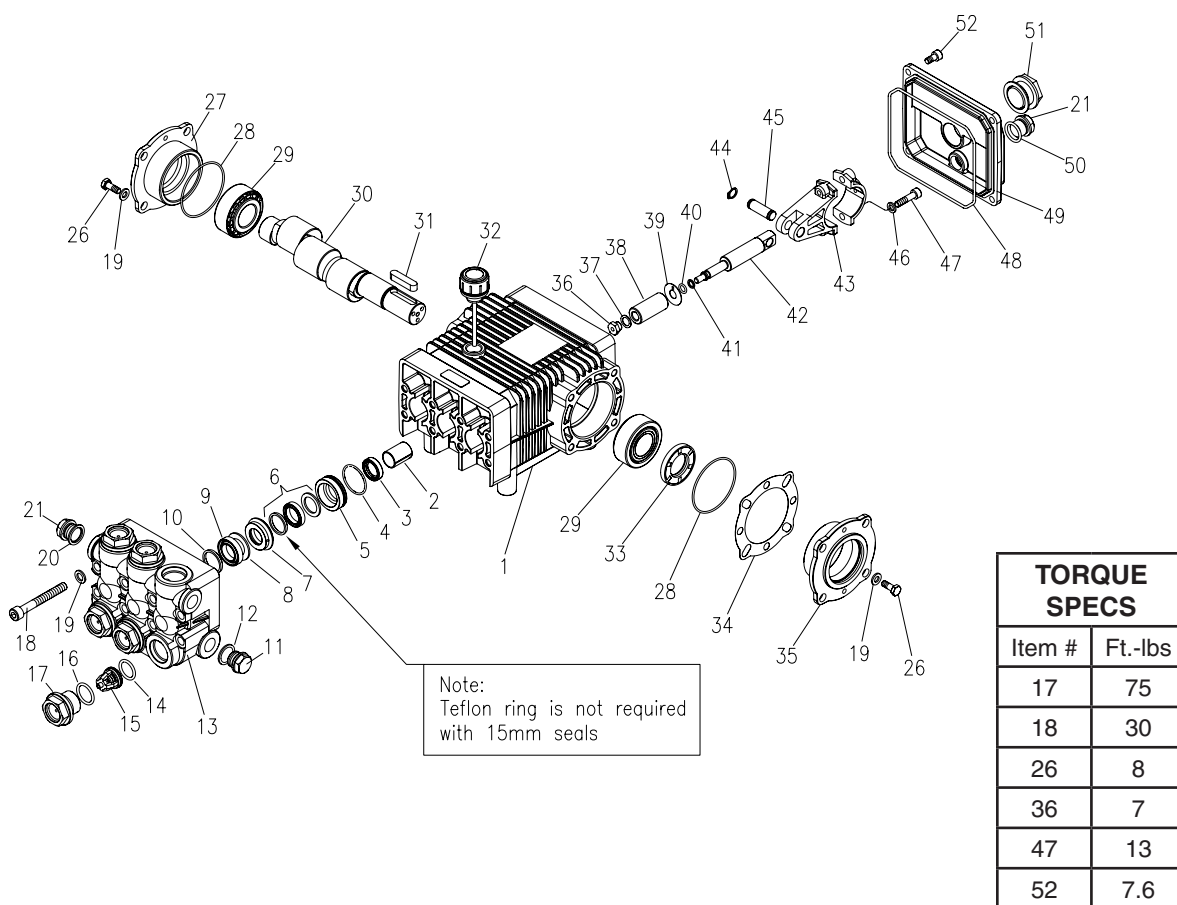


ITEM	PART NO.	DESCRIPTION	QTY
1	8.705-749.0	3/8 Bsp F Outlet Fitting	1
2	8.704-218.0*	O-ring 1.78 x 18.77 mm	2
3		Spring	1
4		Check Valve	1
5	8.704-230.0*	O-ring 3 x 6 mm	1
6		VB8 Brass Body	1
7		O-Ring 2,.62 x 7.6 mm	1
8		Piston	1
9		O-ring 1 x 4 mm	1
10	9.804-550.0*	O-ring 1.78 x 15.6 mm	1
11		M 6 Nut	1
12		VB8/9 Seat+Shutter	1
13		Back Ring 11.4 x 15.9 mm	2
14		O-ring 2.62 x 10.77 mm	1
15		Spring Guide	1
16		O-ring 2.62 x 5.23 mm	1
17		Piston Housing	1
18		M 4 x 4 mm Dowel	1
19		M 22 Nut	1
20		Washer 9 x 15 mm	1
21	8.932-987.0	3.2 x 33 mm Spring	1

ITEM	PART NO.	DESCRIPTION	QTY
22		Upper Frame	1
23		1/4" Ball	1
24		Brass Cap	1
25		Sst Clip	1
26		Plastic Housing	1
27		El.Cable + Micro Switch	1
28		O-ring 2.62 x 28.25 mm	1
29		2.5 x 12 mm Screw	2
30		Cover	1
31		O-ring 2.62 x 6.02 mm	1
32		Black Nut-40 Bar	1
33		O-ring 1.78 x 3.68 mm	1
34		Sst Washer 4 x 8 mm	1
35		Spring	1
36		PR 5 Pin	1
37		Plastic Handle (60.1290.00)	1
38		Washer D. 30 mm (60.1290.00)	1
39		M 30 Nut (60.1290.00)	1
40	8.705-930.0	PR 5 Pl.Housing Kit	1

KM.2 PUMP EXPLODED VIEW

9.802-343.0 KM4035R.2



KM.2 PUMP EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	8.933-012.0	Crankcase	1	26	9.802-944.0	Hexagonal Screw	8
2	9.803-196.0	Plunger Guide	3	27	8.717-210.0	Closed Bearing Housing	1
3*	See Kits	Plunger Oil Seal	3	28	9.803-192.0	O-Ring Ø1.78 x 60.05	2
4*	See Kits	O-Ring Ø1.78 x 31.47	3	29	8.933-011.0	Tapered Roller Bearing	2
5*	See Kits	Pressure Ring	3	30	9.803-146.0	Crankshaft (5030, 3540)	1
6*	See Kits	U-Seal	3		9.803-147.0	Crankshaft (4030, 4035, 6035)	1
7*	See Kits	Intermediate Ring	3	31	9.803-167.0	Crankshaft Key	1
8*	See Kits	Back-up Ring	3	32	9.802-921.0	Oil Dip Stick	1
9*	See Kits	U-Seal	3	33	9.803-140.0	Crankshaft Seal	1
10*	See Kits	Support Ring	3	34	9.803-178.0	Shim	2
13	9.802-932.0	Manifold Head	1	35	8.717-209.0	Bearing Housing	1
14*	See Kits	O-Ring Ø2.62 x 17.13	6	36*	See Kits	Plunger Bolt	3
15*	See Kits	Valve Assembly	6	37*	See Kits	Copper Spacer	3
16*	See Kits	O-Ring Ø2.62 x 20.29	6	38*	See Kits	O-Ring Ø1.78 x 7.66	3
17	9.802-928.0	Valve Plug	6	39*	See Kits	Teflon Ring	3
18	9.802-938.0	Manifold Stud Bolt	8	40*	See Kits	Plunger (4035, 6035)	3
19	9.802-884.0	Washer	16		See Kits	Plunger (4030, 5030)	3
20	9.803-198.0	Copper Washer 3/8	1		See Kits	Plunger (3540)	3
21	9.802-925.0	Brass Plug 3/8	1	41*	See Kits	Copper Spacer	3

KM.2 PUMP EXPLODED VIEW PARTS LIST (CONT)

ITEM	PART NO.	DESCRIPTION	QTY
42	9.803-144.0	Plunger Rod	3
43	9.803-158.0	Connecting Rod	3
44	9.802-913.0	Snap Ring	6
45	9.802-916.0	Connecting Rod Pin	3
46	9.803-218.0	Spring Washer	6
47	9.803-238.0	Connecting Rod Screw	6
48	8.933-016.0	O-Ring, Ø2.62 x 126.67	1
49	9.803-165.0	Crankcase Cover	1
50	9.803-197.0	O-Ring, Ø1.78 x 14	1
51	9.803-202.0	Sight Glass 3/4	1
52	9.802-939.0	Cover Screw	5

* Available in kit (See below)

REPAIR KIT NO.	8.725-360.0	8.725-362.0	8.725-358.0	8.725-361.0	8.725-363.0	8.725-359.0
KIT DESCRIPTION	Plunger Seal 4035 6035 18mm	Plunger Seal 4030 5030 20mm	Plunger Seal 3540 15mm	Complete Seal Packing 4035 6035 18mm	Complete Seal Packing 4030 5030 20mm	Complete Seal Packing 3540 15mm
ITEM NUMBERS INCLUDED	4, 6, 8, 9, 10	4, 6, 8, 9, 10	4, 6, 8, 9, 10	4, 5, 6, 7, 8, 9, 10	4, 5, 6, 7, 8, 9, 10	4, 5, 6, 7, 8, 9, 10
NO. OF CYLINDERS KIT WILL SERVICE	3	3	3	1	1	1

REPAIR KIT NO.	9.802-629.0	9.802-620.0	8.933-023.0	9.802-603.0	9.802-609.0
KIT DESCRIPTION	Plunger 4035 6035 18mm	Plunger 4030 5030 20mm	Plunger 3540 15mm	Complete Valve	Plunger Oil Seals
ITEM NUMBERS INCLUDED	36, 37, 38, 39, 40, 41	36, 37, 38, 39, 40, 41	36, 37, 38, 39, 40, 41	14, 15, 16	3
NO. OF CYLINDERS KIT WILL SERVICE	1	1	1	6	3

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
LOW OPERATING PRESSURE	Faulty pressure gauge	Install new gauge.
	Insufficient water supply	Use larger garden hose; clean filter washer at water inlet.
	Old, worn or incorrect spray nozzle	Match nozzle number to machine and/or replace with new nozzle.
	Plumbing or hose leak	Check plumbing system for leaks. Retape leaks with teflon tape.
	Faulty or misadjusted unloader valve (where applicable)	Adjust unloader for proper pressure. Install repair kit when needed.
	Worn packing in pump	Install new packing kit.
	Fouled or dirty inlet or discharge valves in pump	Clean inlet and discharge valves.
	Worn inlet or discharge valves	Replace with valve kit.
	Leaking pressure control valve (where applicable)	Rebuild or replace as needed.
FLUCTUATING PRESSURE	Valves worn	Check and replace if necessary.
	Blockage in valve	Check and clean out if necessary.
	Pump sucking air	Check water supply and suction line for air seepage at joints.
	Worn piston packing	Check and replace if necessary.
PRESSURE LOW AFTER PERIOD OF NORMAL USE	Nozzle worn	Check and replace if necessary.
	Inlet or discharge valves blocked or worn	Check and clean or replace if necessary.
	Unloader valve seat worn	Check and replace if necessary.
PUMP NOISY	Air in suction line	Check water supply connections on suction line.
	Broken or weak inlet or discharge valve springs	Check and replace if necessary.
	Foreign matter in valves	Check and clean if necessary.
	Worn bearings	Check and replace if necessary.
PRESENCE OF WATER IN PUMP OIL	Water sprayed at machine	Change oil. Direct spray away from machine.
	High humidity in air	Check and change oil twice as often.
	Piston packing worn. Oil seal worn	Check and replace if necessary.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
OIL SQUIRTS OUT OF OIL CAP ON PUMP	Pump overfilled with oil	Maintain oil level at red dot on sight glass at rear of pump or at top of notch on dipstick (where applicable).
WATER DRIPPING FROM UNDER PUMP	Piston packing worn	Check and replace if necessary.
	O-Ring plunger retainer worn	Check and replace if necessary.
	Cracked piston	Check and replace if necessary.
OIL DRIPPING	Oil seal worn	Check and replace if necessary.
EXCESSIVE VIBRATION IN DELIVERY LINE	Irregular functioning of the valves	Check and replace if necessary.
SYSTEM WILL NOT START	Power, water, auto switch not on	Check and turn on.
	Motor overload tripped	Check and reset.
	Control fuse blown (2 or 3 amp)	Check and replace.
	Pressure switch faulty	Check, clean or replace.
	Timer faulty	Check and replace.
SYSTEM WILL NOT STOP	Water leak in discharge line	Repair water leak.
	Pressure switch faulty	Disconnect at timer. If unit stops, replace pressure switch.
	Timer resistor faulty	Replace timer.
SYSTEM STOPS AFTER APPROXIMATELY 10 SECONDS AND THEN RESTARTS	Faulty pressure switch	Check and replace.
	Leak in system	Fix leak.
WATER IS NOT HOT	Tank water low	Check for leaks and fill.
	Temperature or level controls faulty	Check and replace.
MOTOR "HUMS" BUT DOES NOT TURN	Electric motor single phasing	Check for blown fuse or loose power line connections.
PUMP RUNNING NORMALLY BUT LOW WATER PRESURE	Air leak in inlet	Check water supply and possibility of air entering water connections.
	Faulty pressure unloader	Bypass pressure unloader by wiring spray gun open. If good PSI, turn machine off and replace regulator. DO NOT RELEASE SPRAY GUN WHILE BYPASSING UNLOADER.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
WATER ESCAPING FROM FILL PIPE ON HEAT EXCHANGER	Cold water added to heat exchanger	Will stop once at operating temperature.
	Ruptured coil or leaking	Check, repair or replace fittings.
UNLOADER DOES NOT GO INTO BYPASS OR WILL CYCLE ITSELF	Spray gun or hose is leaking to atmosphere	Check and repair all leaks.
	Check plunger either did not move or did not seal	Remove discharge port. Clean and inspect the check plunger. Replace the o-ring if needed.
	Actuator o-ring failure	Remove actuator plunger assembly and inspect o-ring and back-up rings. Replace if necessary.
SPIKES TOO HIGH	Slow moving actuator; this may be caused by bad o-rings either on the plunger or inside the actuator fitting.	Remove the actuator assembly to inspect the o-ring and back-up rings. The actuator assembly will have to be disassembled to inspect and/or replace the o-rings in the actuator fitting.
	Spring tension	Adjustment should stop when pressure is no longer affected by further compression of the spring.
	Hose length	Hose length can affect the amount of spike pressure. Long lengths of hose may cause high spike pressures.
SYSTEM WON'T COME UP TO PRESSURE	Water is leaking between ball and seat	Disassemble inlet fitting and check for contaminants or worn parts. Clean or replace as needed.
	O-Rings on actuator plunger are bad	Remove actuator assembly and inspect o-ring and back-up rings. Replace if necessary.
	Locknut may be improperly set	Readjust locknut. NOTE: The locknut is inside the spring on models that have the stem exposed above the spring.
	Tip/GPM combination is incorrect	Check actual GPM on unrestricted pump and size tip accordingly.
	Tip worn- the GPM may be greater than expected with a worn tip	Replace tip.
	Bad gauge - the pressure may be higher than the gauge shows	Replace gauge.

[illegible]

NOTES:

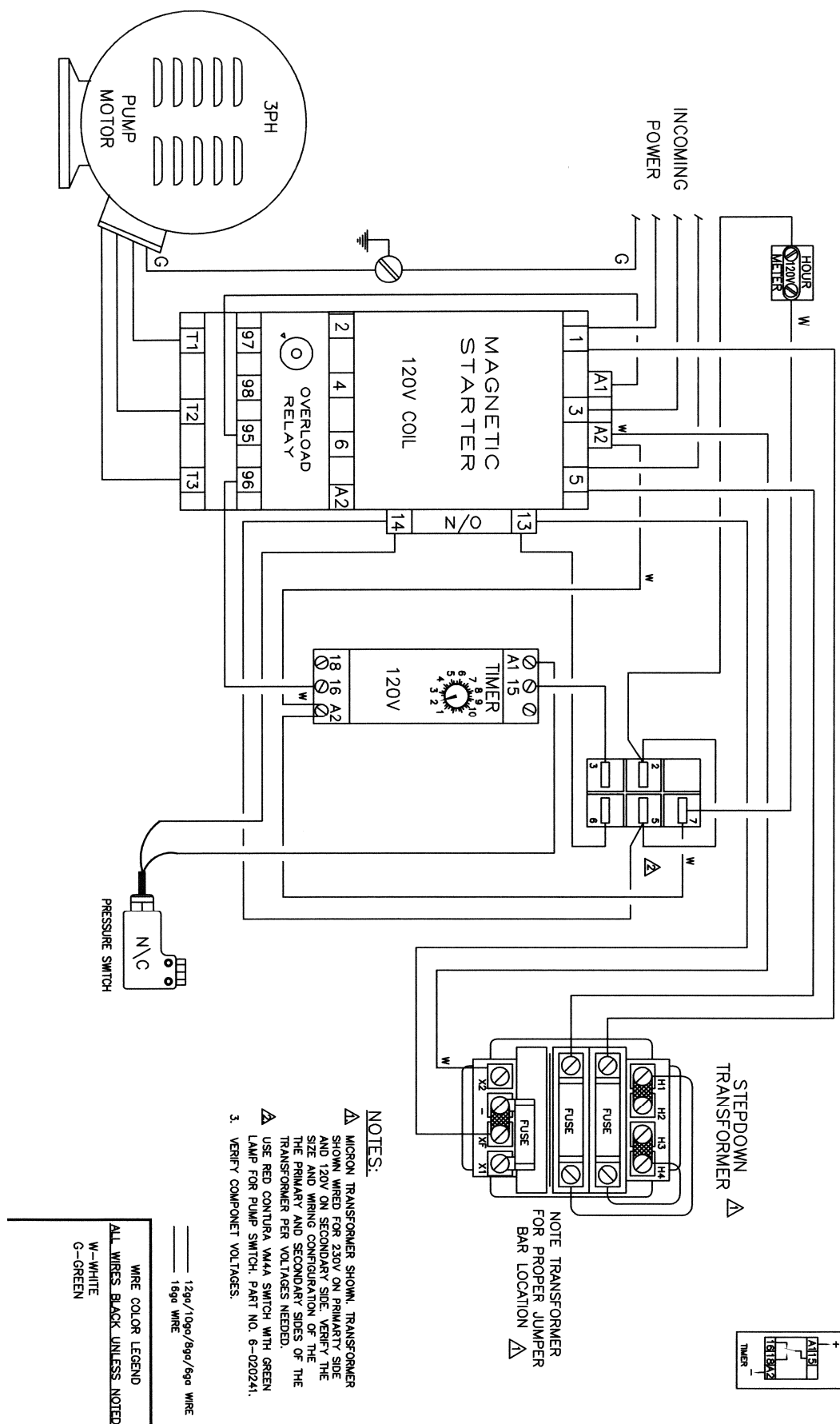
2. VERIFY COMPONENT VOLTAGES.

WIRE COLOR LEGEND

ALL WIRES BLACK UNLESS NOTED

W-WHITE
G-GREEN
R-RED

WIRING DIAGRAM - WITH TIME DELAY SHUTDOWN OPTION





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